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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/627,531	07/28/00	BERRY S	ARC2914C1

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EXAMINER	
EUBARA, B	
ART UNIT	PAPER NUMBER
1615	5

DATE MAILED: 05/11/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/627,531	BERRY ET AL.	
	Examiner	Art Unit	
	Blessing M. Fubara	1615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-41 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-41 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15)☒ Notice of References Cited (PTO-892)
16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 .
18)☐ Interview Summary (PTO-413) Paper No(s). _____ .
19)☐ Notice of Informal Patent Application (PTO-152)
20)☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knepp et al. (WO 98/16250) and Roorda et al. (US Patent No. 5540912) in view of Nuwayser (US Patent No. 4927687).

Knepp et al. discloses a stable non-aqueous formulation comprising of suspensions of hormones, peptides, polypeptides, proteins, nucleic acids in non-aqueous, anhydrous, aprotic, hydrophobic, non-polar vehicles having low reactivity (abstract, and 6, lines 15-19). The non-aqueous delivery system of Knepp et al. is implantable, ambulatory infusable and injectable device for sustained delivery (page 6, lines 22-24), and is stored at elevated temperature (37°C) for extended time (page 6, lines 24-25). These stable formulations of Knepp et al. are flowable and as such can shipped and stored at high temperatures or in implantable delivery devices for long term delivery of drug for 1-12 months or longer (page 6, lines 25-28). Knepp et al. teaches that the flowable formulation may optionally include sucrose, sorbitol, raffinose and dextran to reduce the effective hydration; mannitol to modify the processing characteristics of the proteins or nucleic acids; buffers to modify the pH; and non-ionic surfactants to protect the surface and solubilize the protein or nucleic acid (page 17, lines 19-30). According to Knepp et al., the

powdered flowable formulation is uniformly dispersed in anhydrous, non-polar, aprotic, hydrophobic, or low-reactivity vehicle (page 7, lines 23-24) such as mineral oil (page 8, line 27), and in example 3, page 23, Knepp et al. describes the suspension of plasma protein powder in perfluorodecalin or methoxyflurane vehicles.

Roorda et al. discloses a controlled or sustained release drug delivery system (column 1, lines 5-8), and teaches a viscous controlled release liquid formulation comprising dispersing biologically active particles in high viscosity liquid or semi-liquid. Roorda et al. discloses that the beneficial particles are uniformly distributed and maintained in place at the area in which the formulation is applied by the highly viscous liquid. Roorda et al. teaches formulating the viscous vehicle from dry materials and this is possible because of the fluid nature of the carrier. See column 3, lines 10-20. The viscous liquid of Roorda et al. includes aqueous solution, non-aqueous solution and undiluted non-aqueous liquids (column 3, lines 50-55). The viscous vehicle of Roorda et al. comprises polyvinylpyrrolidone, polyvinyl alcohol, polyethylene glycol (column 4, lines 5-15), polylactic/glycolic acid, PLGA (column 9, example 1), and polyalcohols such as sorbitol (column 6, line30-31). Roorda et al. suggests that one can control the rate of release of the biologically effective agent by varying the size of the particles, and this affords one to achieve a desired release rate for a particular application (column 3, lines 32-35). Therefore, one can select the size of the particle that will result in the desired release rate, be it for over a period of two or more days (column 3, lines 35-40). The concentration of the polymer is not critical to Roorda et al. who teaches that the concentration of the polymer affects the viscosity of the vehicle such that a polymer concentration is selected to achieve the desired viscosity (column 4, lines 24-34). Roorda et al. recommends the viscosity of the vehicle to range from 10 to about

2,00,000 centipoise, cautions that the viscosity will be different for different applications and polymer and particle concentration affect the viscosity (column 4, lines 41-64). Roorda et al. further teaches that the biologically effective agent comprises from about 1-60% of the weight of the particles (column 6, lines 49-51), and the biologically effective agents are antibacterial, antiviral, anti-inflammatory and tissue regeneration agents, and local anesthetics (column 5, lines 33-44).

Nuwayser discloses a sustained release transdermal composition having a zero order release of drugs to designated skin are of the user (title and abstract). The drug material of Nuwayser comprises antibiotics, antibacterial agents, hormones, and steroids (column 10, lines 23-30). Nuwayser teaches a viscous delivery vehicle (column 5, line 28) comprising of biodegradable polylactide polymer (column 10, lines 20-23) and glycerol for zero order release of drug microparticles uniformly dispersed and suspended in the viscous liquid (claims 1-10).

Knepp et al. is silent on the viscosity of the vehicles in which the flowable powder formulation of proteins, hormones and peptides. Nuwayser teaches viscous delivery vehicle comprising of biodegradable polymer for the sustained release of uniformly dispersed and suspended microparticles of hormones, steroids and antibacterial agents. Roorda et al. teaches that the viscosity of the vehicle is controlled by the concentration of the polymer and biologically effective particles. Roorda et al. also teaches that the particle size influences the release rate of the particles from the vehicle. Roorda et al. suggests that one can select a particle size to achieve a desired release rate, and polymer and particle concentration for the desired vehicle viscosity. See the preceding paragraphs for the discussions.

The expected result is a non-aqueous uniform bio-compatible viscous delivery vehicle for suspending and delivering beneficial agents at a release rate that is determined by the choice of particle size. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the teachings of Knepp et al. and Roorda et al. in the manner taught by Nuwayser. One having ordinary skill in this art would have been motivated to select polymer and polymer concentration to build a non-aqueous homogeneous bio-compatible viscous delivery vehicle that has the required viscosity for the desired application, and choose a stable flowable biologically effective agent having the appropriate particle size for suspension and delivery from the viscous vehicle. The burden is on the applicant to demonstrate the criticality of the slow flow rate and the exit shear rate of 1×10^{-7} reciprocal second. Knepp et al. (page 14, lines 11) teaches that it is normal practice to include ascorbic acid, anti-oxidant in dilute aqueous peptide and protein formulations and also that formulation of dry protein or nucleic acid powders is well known in the art (page 17, line 30). It is therefore prima facie obvious to include anti-oxidant in the formulation.

. Knepp et al. discloses a delivery vehicle comprising proteins, peptides, hormones, non-ionic surfactants, sucrose, raffinose, sorbitol, dextran, buffers and mineral oil. Nuwayser teaches a viscous delivery vehicle comprising biodegradable polymer, glycerol, and microparticles of hormones, steroids and antibacterial agents. Roorda et al. teaches viscous delivery vehicle comprising sorbitol, anti-bacterial agents, antiviral, anti-inflammatory and tissue regeneration agents, polyvinylpyrrolidone and polylactic/glycolic acid. Nuwayser and Roorda et al. teach viscous delivery vehicles comprising antibacterial agents and Nuwayser's vehicle in addition comprises hormones and steroids. Knepp et al. teaches a delivery vehicle comprising peptides,

proteins, hormones and steroids. All three references teach delivery vehicles comprising antibacterial agents (Roorda and Nuwayser) and hormones and steroids (Nuwayser and Knepp et al). There is reasonable expectation of success for a delivery vehicle comprising sorbitol, anti-bacterial agents, antiviral, anti-inflammatory and tissue regeneration agents, polyvinylpyrrolidone and polylactic/glycolic acid, proteins, peptides, hormones, non-ionic surfactants, sucrose, raffinose, sorbitol, dextran, buffers, mineral oil, biodegradable polymer, glycerol, and microparticles of hormones and steroids.

Double Patenting

3. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

4. Claims 1-8, 10 and 12-41 provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-8, 10-13 and 14-38 of copending Application No. 09/497,422.

This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1, 9 and 11 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 4 and 9 of copending Application No. 09/497,422. Although the conflicting claims are not identical, they are not patentably distinct from each other because is obvious to modify the amounts of solvent, surfactant and polymer to the ranges claimed in the instant application from the ranges claimed in the co-pending application serial number 09/497,422.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

7. Applicants' cooperation is requested in correcting any errors of which applicants may become aware in the specification.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blessing M. Fubara whose telephone number is 703-308-8374. The examiner can normally be reached on 7 a.m. to 3:30 p.m. (Monday to Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman K. Page can be reached on 703-308-2927. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3592 for regular communications and 703-305-3592 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1234.

Blessing Fubara
May 11, 2001

THURMAN K. PAGE
SUPERVISORY PATENT EXAMINER
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